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EXAMINER
STOFFREGEN, JOEL

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/723,242	HAMALAINEN ET AL.
	Examiner	Art Unit	
	Joel Stoffregen	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *11/26/2003*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election with traverse of claims 1-6 in the reply filed on 07/23/2007 is

acknowledged.

Claim Objections

2.   The claims are objected to because of the following informalities:

Claims 1, 3, 5, and 6, use the phrases "may comprise" and "may be reused".

These phrases are indefinite. More precise terminology, such as "comprises" and "are

reused" should be used.

Claim 5, p. 29, lines 14-15, reads, "save an internal state of said audio decoder

into said storage component". However, there are two storage components in the claim.

The claim should refer to "said second storage component".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cole, Patent No.: US 5,890,115 ("COLE"), in view of Wiggins, Jr. et al., Patent No.:

4,304,964 ("WIGGINS").

5.   Regarding **claim 1**, COLE teaches a method for use in a wavetable based sound

synthesis for which encoded wavetable data is decoded by means of an audio decoder

on a frame-by-frame basis ("the wavetable synthesizer 700 processes voices in

frames", COLE, column 14, lines 41-42), each frame comprising at least one sample

("one sample period is called a frame", COLE, column 10, line 45), wherein said

encoded wavetable data comprises samples in an attack section ("an attack stage",

COLE, column 13, line 55) and samples in a loop section ("a sustain stage", COLE,

column 13, line 55), which samples of said loop section may be reused for a playback in

a loop as often as required ("loop through some range of data", COLE, column 18, line

19), said method comprising:

        a) decoding consecutive frames of said wavetable data starting with a first frame

up to a frame which includes a start of said loop section ("step directly through the

stored data", COLE, column 18, lines 18-19); and

        c) decoding subsequently all frames comprising samples of said loop section

("loop through some range of data", COLE, column 18, line 19) and providing said

decoded frames for further processing for a playback ("playing back of digital files",

COLE, column 18, line 30).

However, COLE does not disclose steps b) and d). In the same field of speech

synthesis, WIGGINS teaches:

b) saving an internal state of said audio decoder before starting to decode said

frame including the start of said loop section ("the K1-K10 coefficients previously

inputted remain unchanged", WIGGINS, column 16, lines 20-21); and

d) at least if said samples of said loop section are distributed to more than one

frame ("a repeat frame is used", WIGGINS, column 16, line 18), restoring said internal

state of said audio decoder, saved at step b) ("the K1-K10 coefficients previously

inputted remain unchanged", WIGGINS, column 16, lines 20-21).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to save speech parameters as taught by WIGGINS

during the loop sections of COLE in order to reduce the data rate (WIGGINS, column 2,

line 34).

6.   Regarding **claim 2**, WIGGINS further teaches that each decoded frame is stored

for said further processing by substituting a preceding frame in a storage component ("a

repeat frame is used", WIGGINS, column 16, line 18), and wherein a respective next

frame is only decoded at a time when samples of a further frame are needed (see

WIGGINS, FIG. 6, decoding continues when a frame other than the "repeat frame" is

sent).

7.   Regarding **claim 3**, COLE teaches a device comprising:

an audio decoder decoding received wavetable data on a frame-by-frame basis

("the wavetable synthesizer 700 processes voices in frames", COLE, column 14, lines

41-42), each frame comprising at least one sample ("one sample period is called a

frame", COLE, column 10, line 45), wherein said encoded wavetable data may comprise

samples in an attack section ("an attack stage", COLE, column 13, line 55) and samples

in a loop section ("a sustain stage", COLE, column 13, line 55), which samples of said

loop section may be reused for a playback in a loop as often as required ("loop through

some range of data", COLE, column 18, line 19);

a storage component for saving an internal state of said audio decoder ("register

array 718", COLE, column 18, line 3); and

a controller ("control logic 732", COLE, column 18, lines 12-13), which controller

causes said audio decoder to decode subsequently all frames comprising samples of

said loop section ("loop through some range of data", COLE, column 18, line 19) and to

provide said decoded frames for further processing for a playback ("playing back of

digital files", COLE, column 18, line 30) ... and to repeat decoding subsequently all

frames comprising said samples of said loop section ("loop through some range of

data", COLE, column 18, line 19).

However COLE does not disclose saving or restoring an internal state of the

audio decoder. In the same field of speech synthesis, WIGGINS teaches saving an

internal state of an audio decoder into a storage component ("ROM 203", WIGGINS,

column 16, line 51) before decoding a next frame ("the K1-K10 coefficients previously

inputted remain unchanged", WIGGINS, column 16, lines 20-21), if said next frame

includes a start of a loop section ("a repeat frame is used", WIGGINS, column 16, line

18), and restoring said internal state saved in said storage component ("the K1-K10

coefficients previously inputted remain unchanged", WIGGINS, column 16, lines 20-21).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to save speech parameters as taught by WIGGINS

during the loop sections of COLE in order to reduce the data rate (WIGGINS, column 2,

line 34).

8.   Regarding **claim 4**, COLE further teaches a second storage component

("wavetable memory 610", COLE, column 18, lines 62-63) for storing the respective last

decoded frame provided by said audio decoder ("a first sample ... addressed by the

current synthesizer address register", COLE, column 18, lines 62-64) and for providing

samples of a respectively stored frame for further processing for a playback ("playing

back of digital files", COLE, column 18, line 30).

9.   Regarding **claim 5**, COLE teaches a wavetable based sound synthesis system

comprising:

a first storage component for storing encoded wavetable data ("wave table data

in the local memory 730", COLE, column 18, lines 1-2);

an audio encoder for encoding a wavetable on a frame-by-frame basis and for

storing resulting wavetable data in said first storage component ("the wavetable

synthesizer 700 processes voices in frames", COLE, column 14, lines 41-42);

an audio decoder decoding received wavetable data on a frame-by-frame basis

("the wavetable synthesizer 700 processes voices in frames", COLE, column 14, lines

41-42), each frame comprising at least one sample ("one sample period is called a

frame", COLE, column 10, line 45), wherein said encoded wavetable data may comprise

samples in an attack section ("an attack stage", COLE, column 13, line 55) and samples

in a loop section ("a sustain stage", COLE, column 13, line 55), which samples of said

loop section may be reused for a playback in a loop as often as required ("loop through

some range of data", COLE, column 18, line 19);

a second storage component for saving an internal state of said audio decoder

("register array 718", COLE, column 18, line 3); and

a controller ("control logic 732", COLE, column 18, lines 12-13), which controller

causes said audio decoder to decode subsequently all frames comprising samples of

said loop section ("loop through some range of data", COLE, column 18, line 19) and to

provide said decoded frames for further processing for a playback ("playing back of

digital files", COLE, column 18, line 30) ... and to repeat decoding subsequently all

frames comprising said samples of said loop section ("loop through some range of

data", COLE, column 18, line 19).

However COLE does not disclose saving or restoring an internal state of the

audio decoder. In the same field of speech synthesis, WIGGINS teaches saving an

internal state of an audio decoder into a storage component ("ROM 203", WIGGINS,

column 16, line 51) before decoding a next frame ("the K1-K10 coefficients previously

inputted remain unchanged", WIGGINS, column 16, lines 20-21), if said next frame

includes a start of a loop section ("a repeat frame is used", WIGGINS, column 16, line 18), and restoring said internal state saved in said storage component ("the K1-K10 coefficients previously inputted remain unchanged", WIGGINS, column 16, lines 20-21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to save speech parameters as taught by WIGGINS during the loop sections of COLE in order to reduce the data rate (WIGGINS, column 2, line 34).

10.   Regarding **claim 6**, COLE teaches a software program product in which a software code for supporting a wavetable based sound synthesis is stored, for which wavetable based sound synthesis encoded wavetable data is decoded by means of an audio decoder decoding received wavetable data on a frame-by-frame basis ("the wavetable synthesizer 700 processes voices in frames", COLE, column 14, lines 41-42), each frame comprising at least one sample ("one sample period is called a frame", COLE, column 10, line 45), wherein said encoded wavetable data may comprise samples in an attack section ("an attack stage", COLE, column 13, line 55) and samples in a loop section ("a sustain stage", COLE, column 13, line 55), which samples of said loop section may be reused for a playback in a loop as often as required ("loop through some range of data", COLE, column 18, line 19), said software code realizing the following steps when running in a processing component which is connected to said audio decoder:

causing said audio decoder to decode subsequently all frames comprising samples of said loop section ("loop through some range of data", COLE, column 18, line 19) and to provide said decoded frames for further processing for a playback ("playing back of digital files", COLE, column 18, line 30) ... and to repeat decoding subsequently all frames comprising said samples of said loop section ("loop through some range of data", COLE, column 18, line 19).

However COLE does not disclose saving or restoring an internal state of the audio decoder. In the same field of speech synthesis, WIGGINS teaches saving an internal state of an audio decoder into a storage component ("ROM 203", WIGGINS, column 16, line 51) before decoding a next frame ("the K1-K10 coefficients previously inputted remain unchanged", WIGGINS, column 16, lines 20-21), if said next frame includes a start of a loop section ("a repeat frame is used", WIGGINS, column 16, line 18), and restoring said internal state saved in said storage component ("the K1-K10 coefficients previously inputted remain unchanged", WIGGINS, column 16, lines 20-21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to save speech parameters as taught by WIGGINS during the loop sections of COLE in order to reduce the data rate (WIGGINS, column 2, line 34).
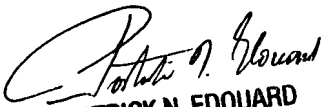
Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. A list of the pertinent prior art can be found on the included form

PTO-892 Notice of References Cited.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joel Stoffregen whose telephone number is (571) 270-

1454. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 6:30

p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JS

PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER